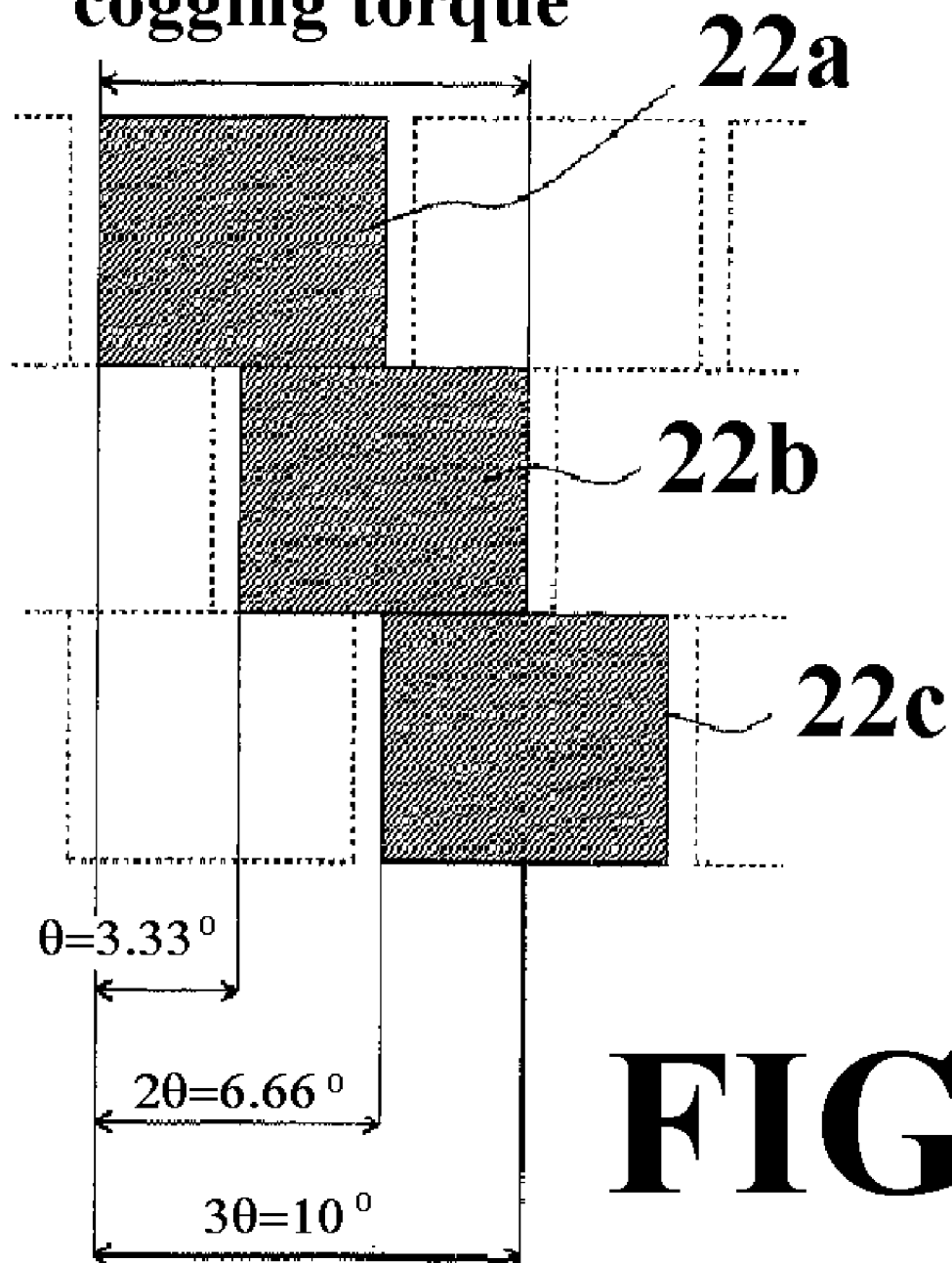


**FIG. 1**

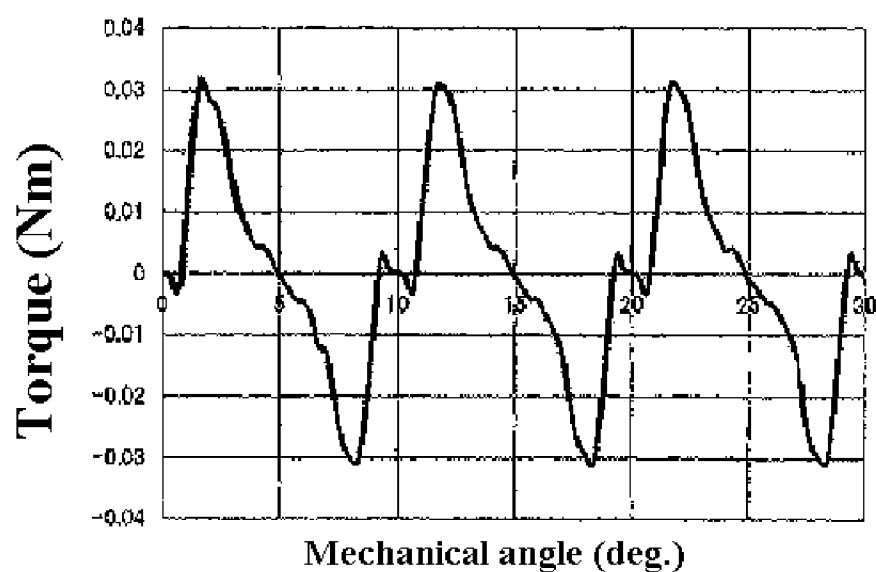
**One period of  
cogging torque**



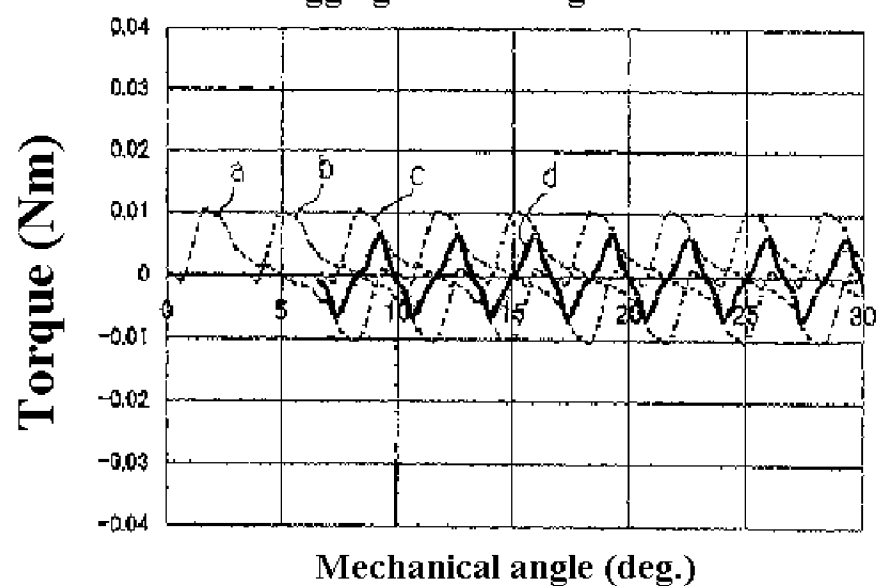
**FIG. 2**

# FIG. 3

Cogging wave single stage

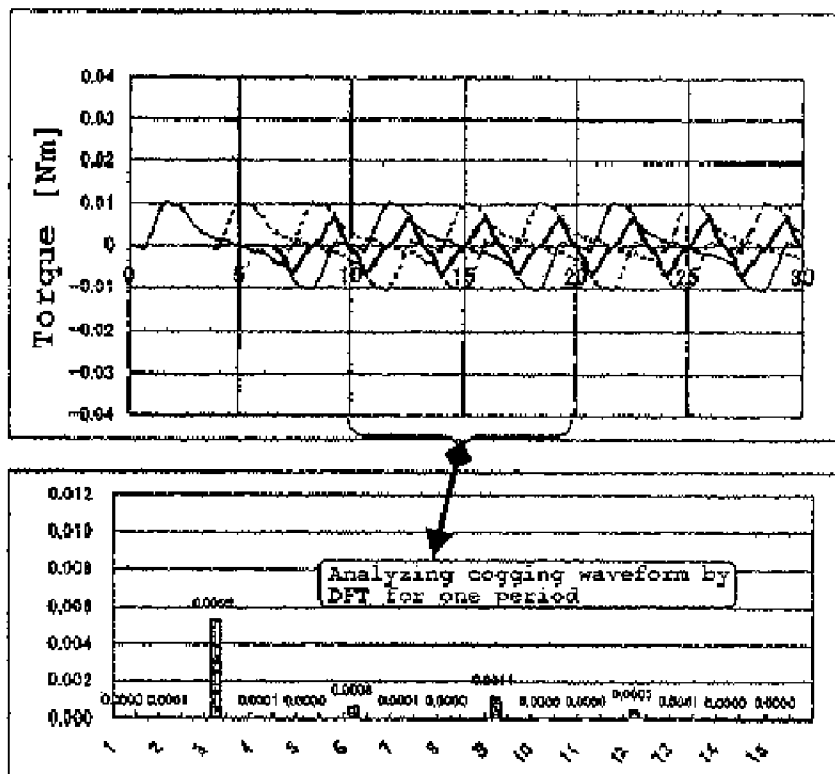
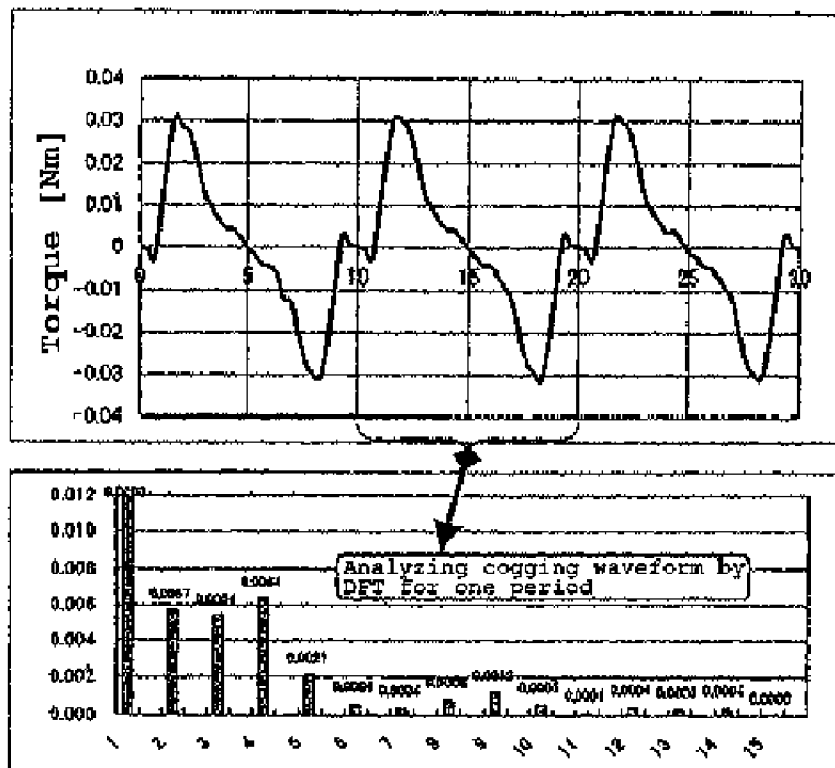


Cogging wave 3 stages skewed



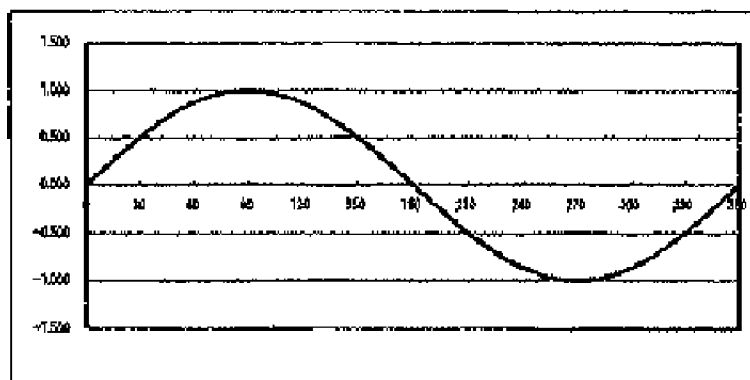
# FIG. 4

# FIG. 5

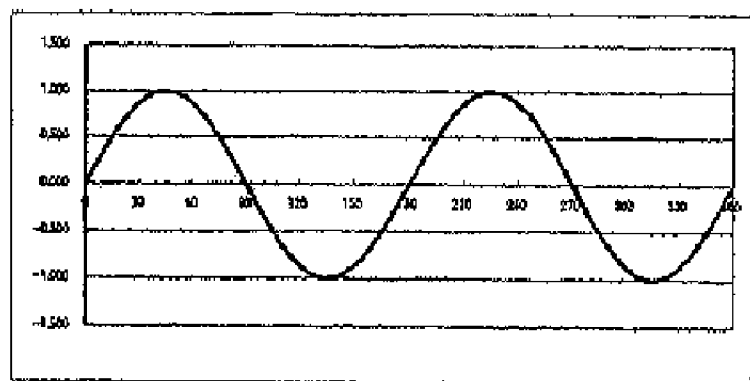


# FIG. 6

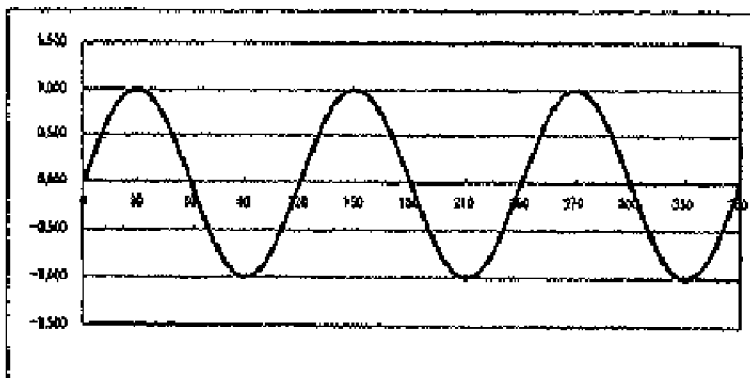
1st order



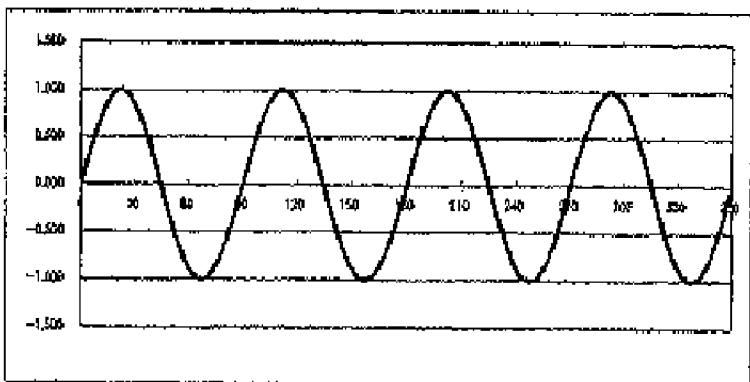
2nd order



3rd order

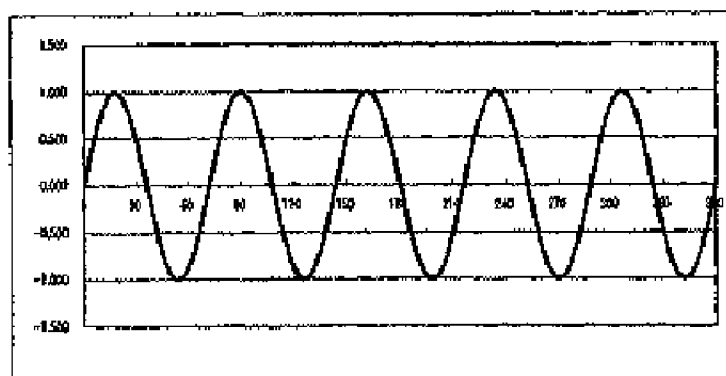


4th order

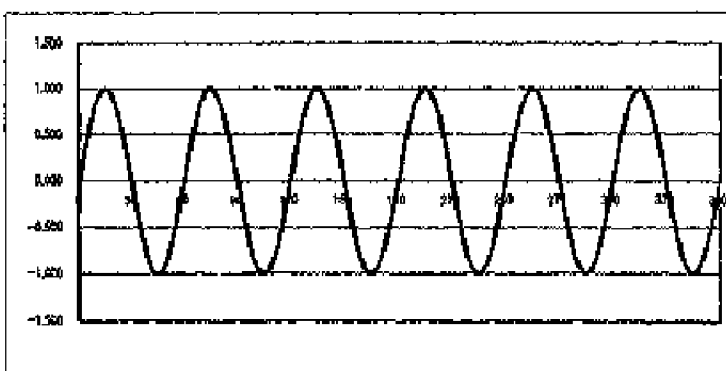


**FIG. 7**

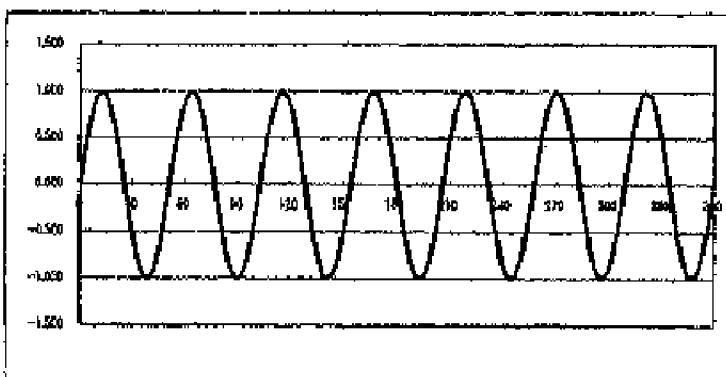
5th order



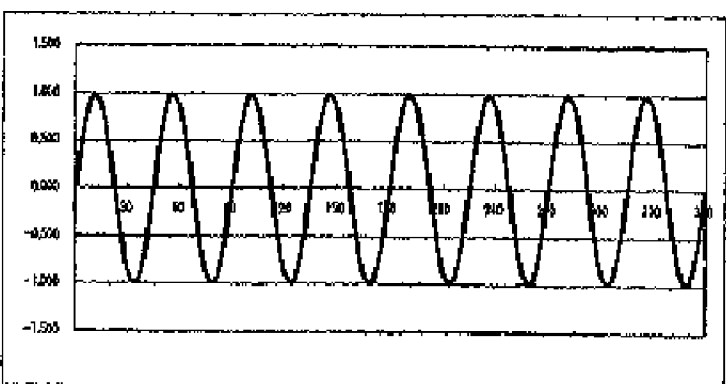
6th order



7th order

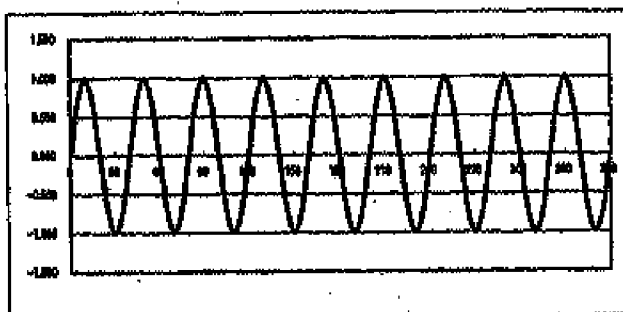


8th order

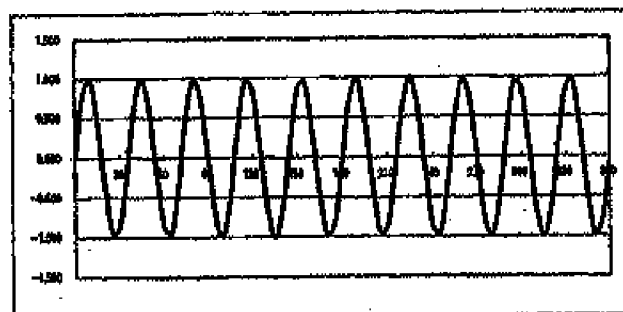


**FIG. 8**

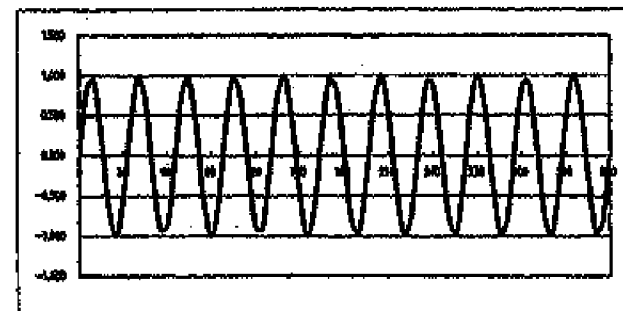
9th order



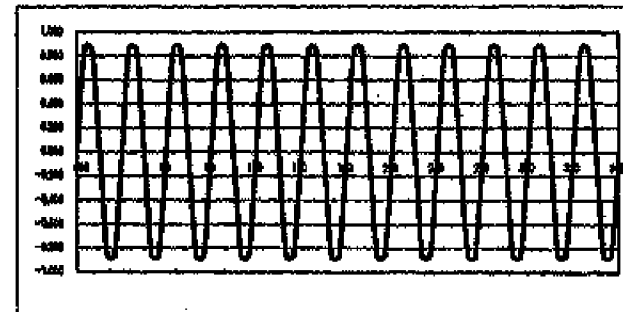
10th order



11th order

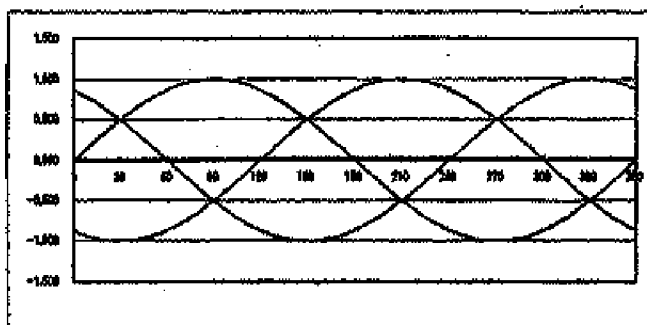


12th order

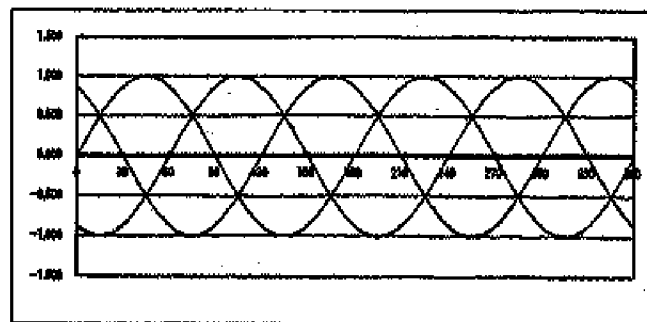


**FIG.9**

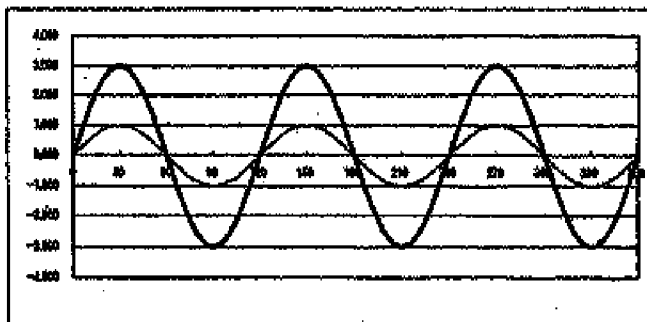
1st order



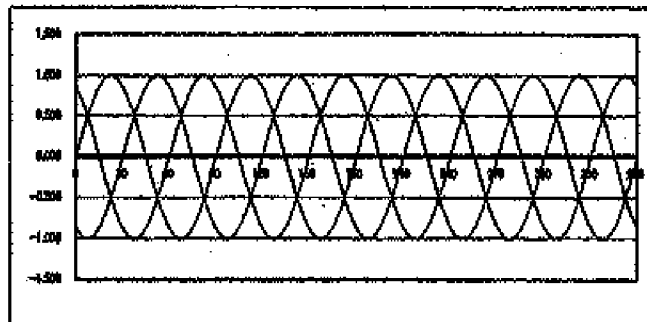
2nd order



3rd order



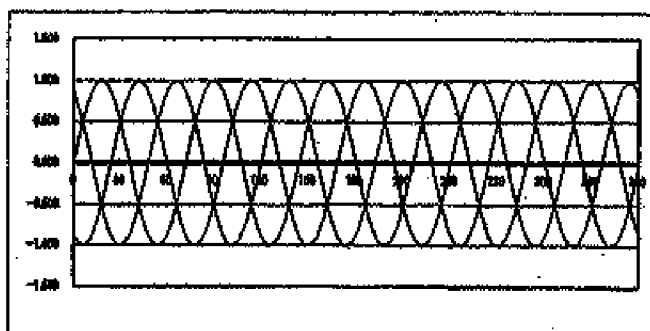
4th order



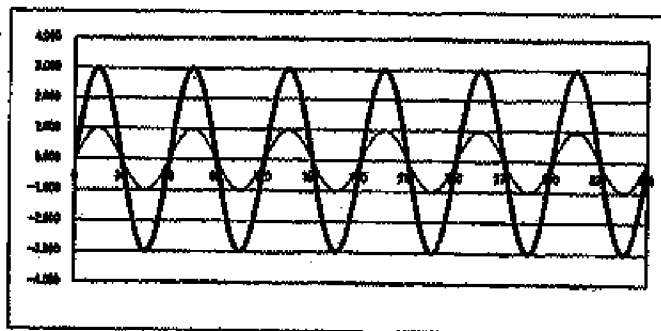
**FIG. 10**



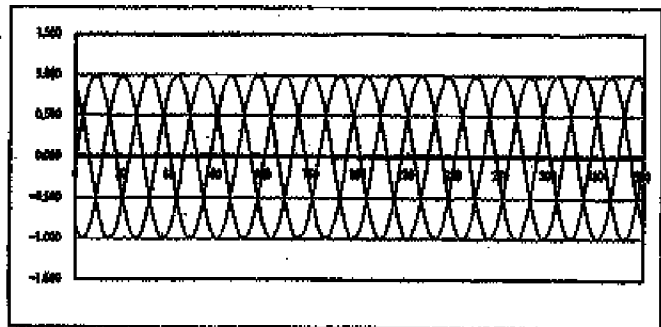
5th order



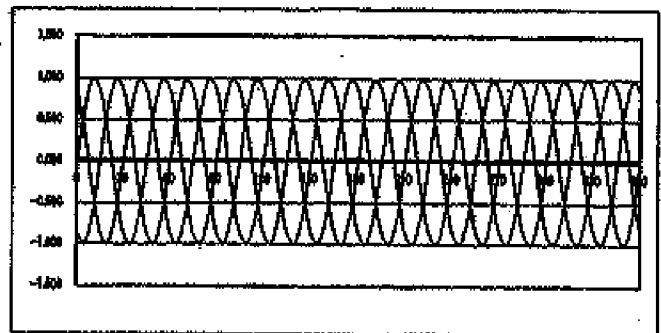
6th order



7th order

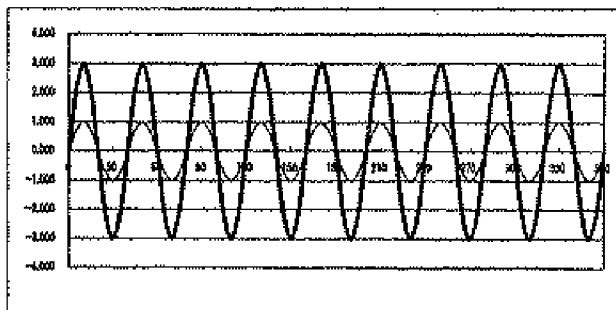


8th order

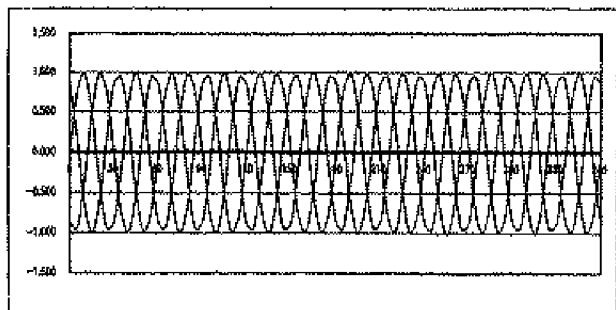


**FIG.11**

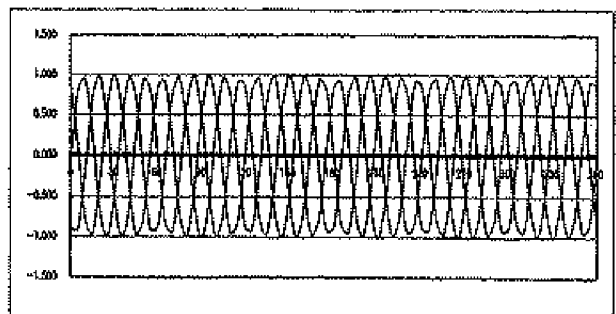
9th order



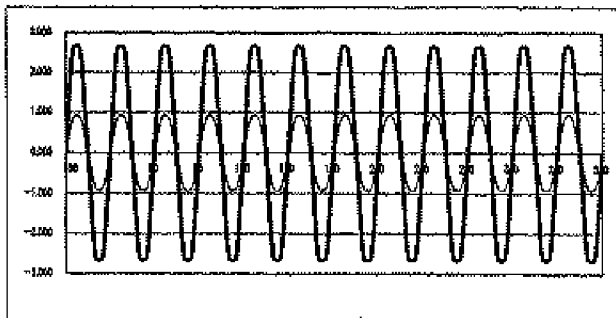
10th order



11th order

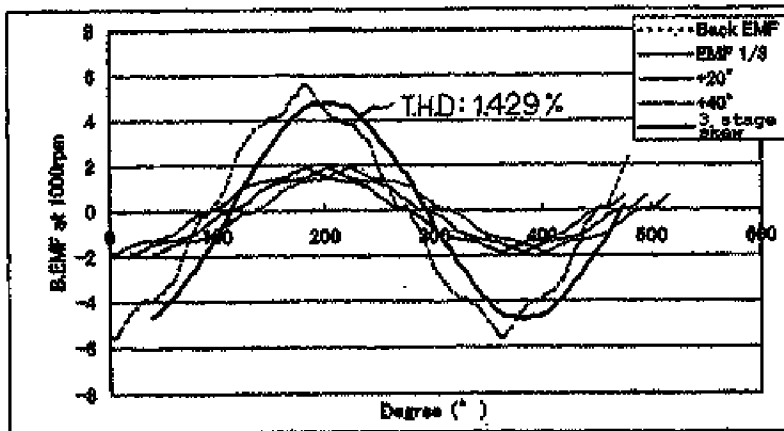
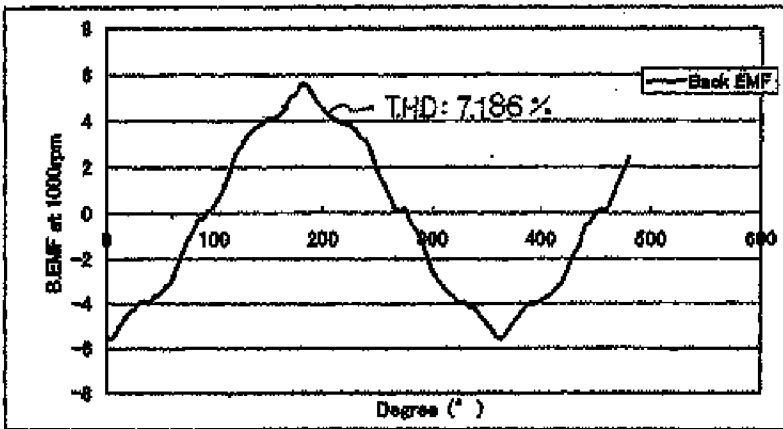


12th order



**FIG.12**

# FIG.13



# FIG. 14

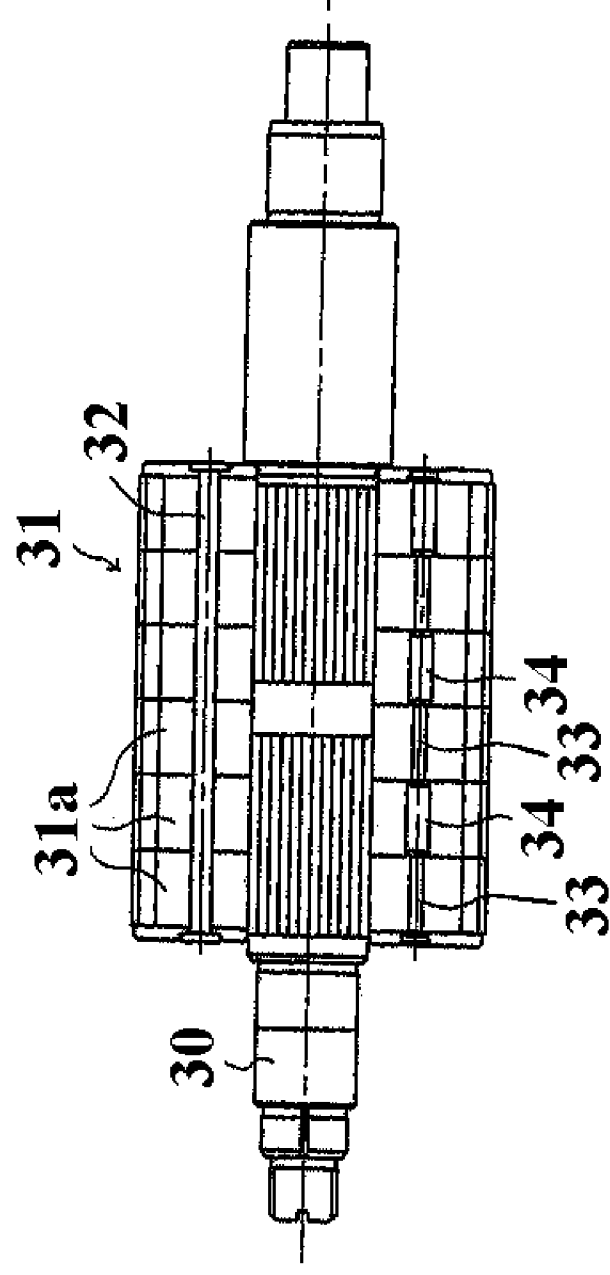
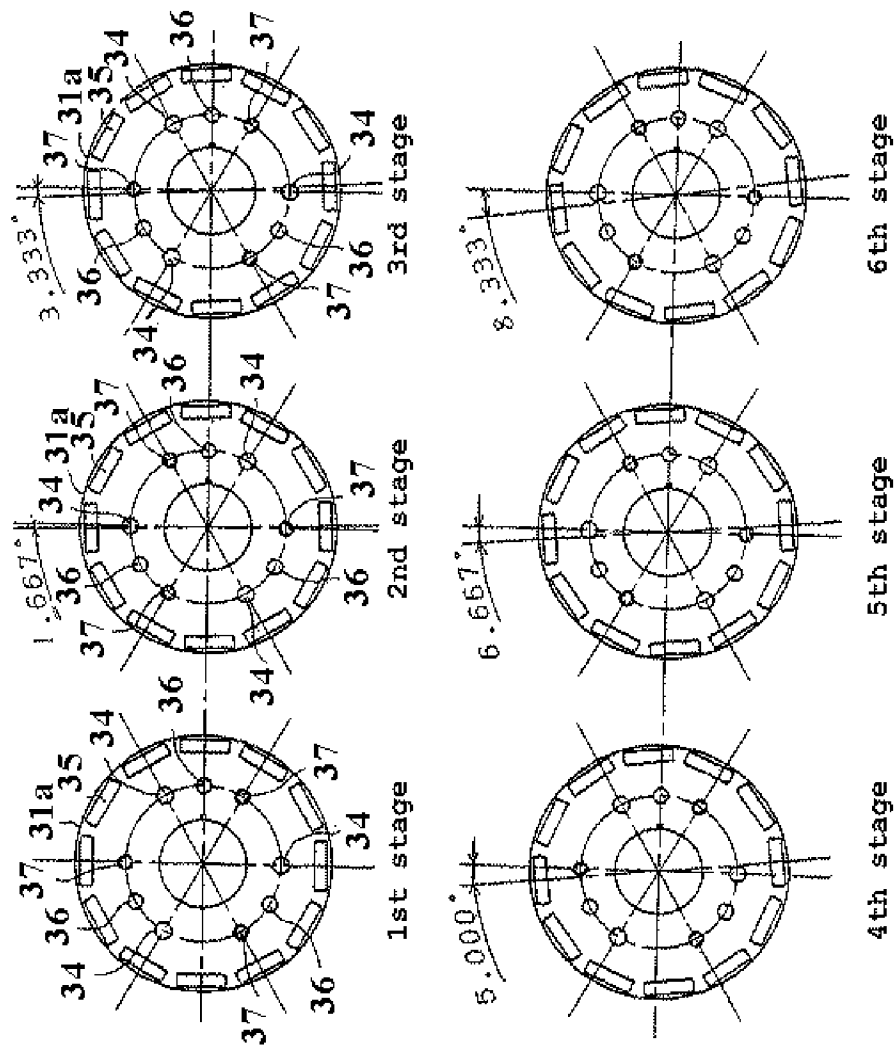


FIG. 15



**FIG. 16**

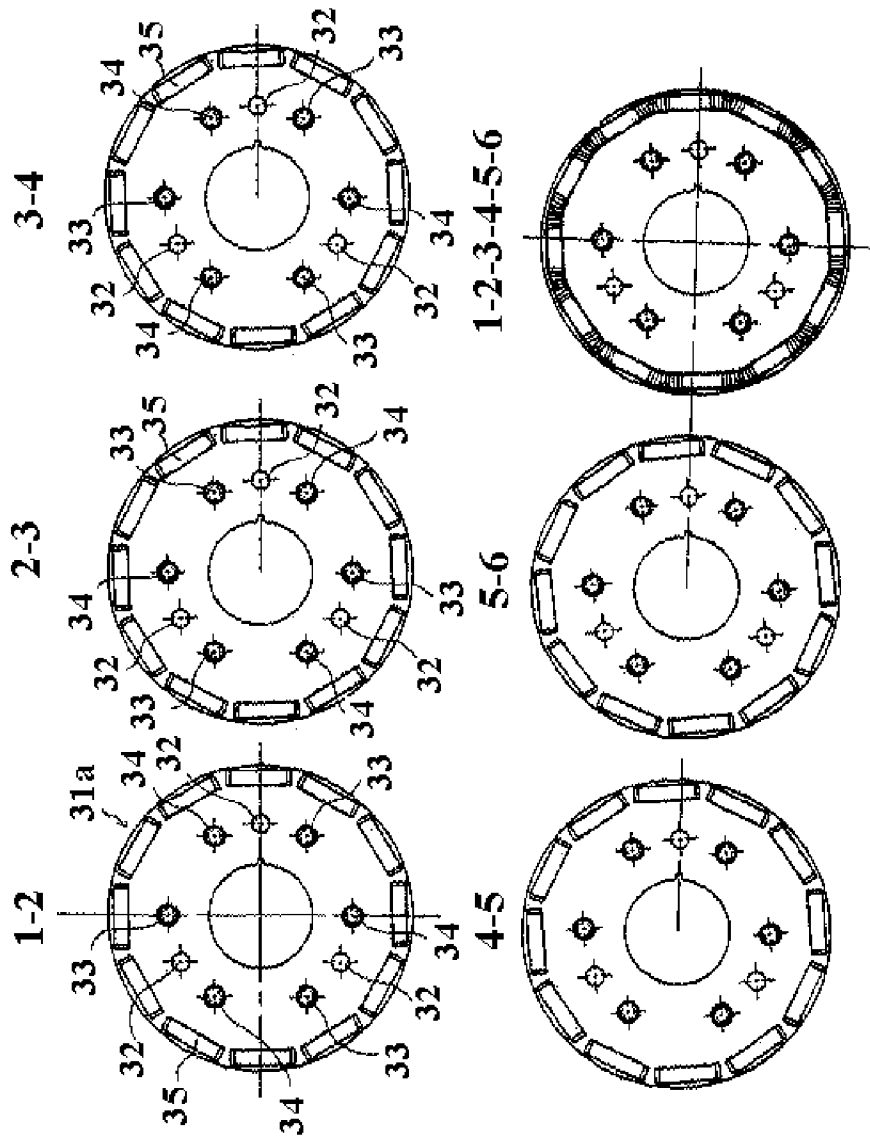
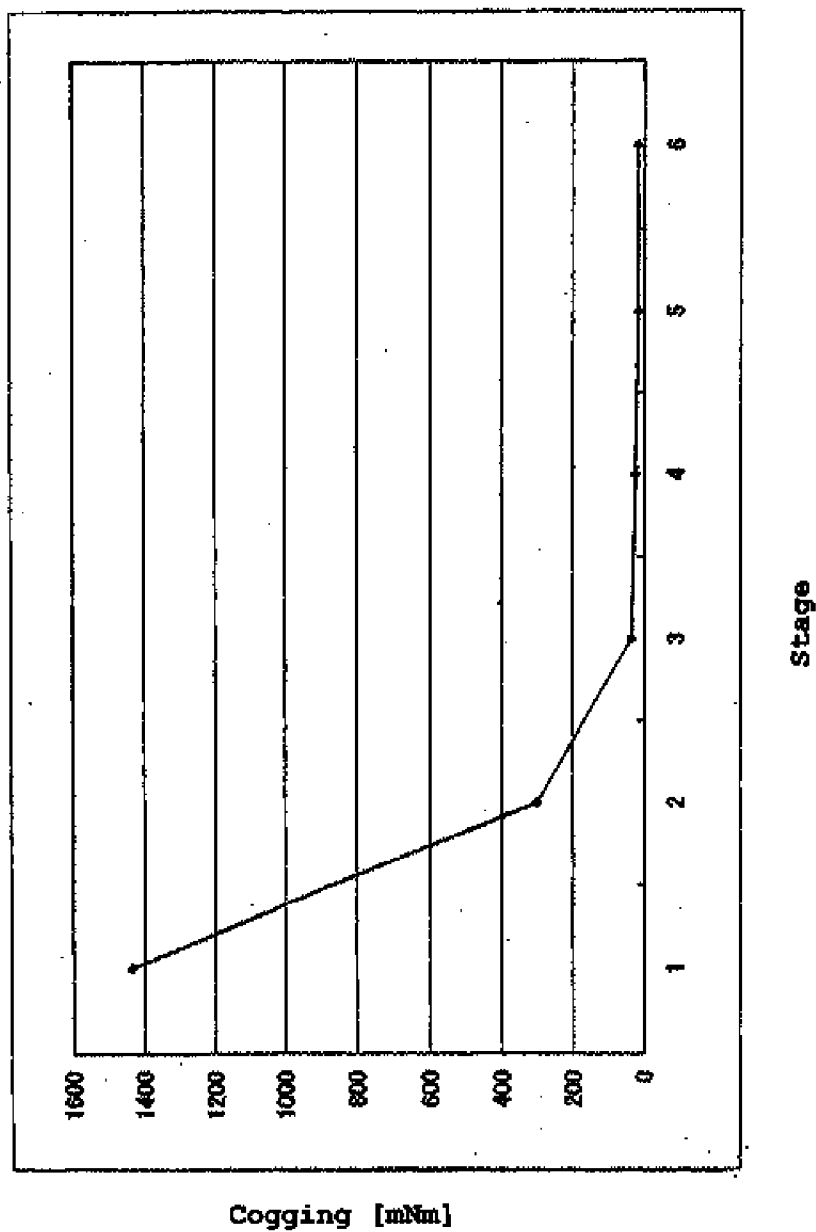


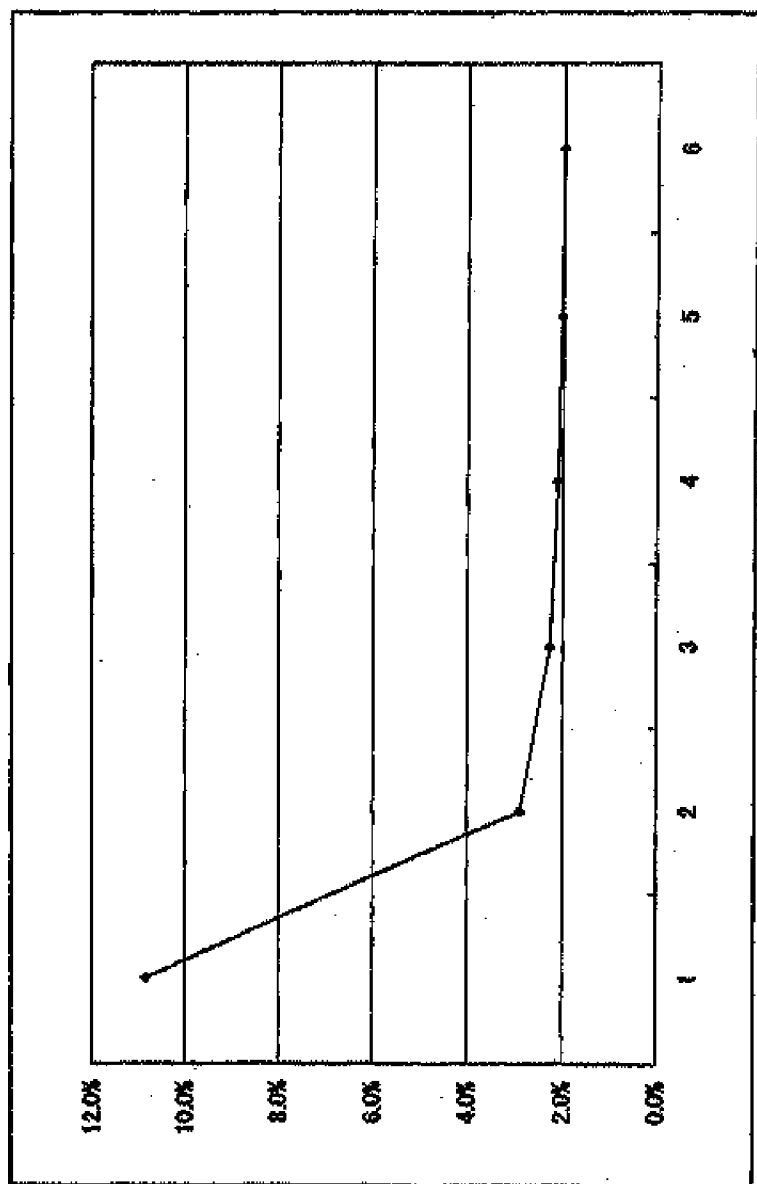
FIG. 17

Cogging torque vs. Number of skewed stages



**FIG. 18**

Speed electromotive force distortion rate T.H.D. vs. Number of skewed stages



Stage

FIG. 19

Speed electromotive force  
distortion rate T.H.D. (%)